

REMARKS

The Office Action dated March 13, 2003 has been reviewed, and the application is amended herein in a manner believed to place the application in condition for allowance, and pursuant to a telephone interview conducted with Examiners Greene and Flynn on July 9, 2003 which is summarized below.

During the telephone interview, independent Claims 3, 4, 11 and 21 were discussed, as well as the Mclellan (U.S. Patent No. 6 229 200), Suda (U.S. Patent No. 5 767 566) and Tsuchiya (U.S. Patent No. 5 633 205) references. Arguments were presented in support of the patentability of the above independent claims, and it was proposed that Claim 3 be amended to include the subject matter of its dependent Claim 17. The Examiners indicated that these arguments were persuasive, and that same would be formally considered once a written Response was submitted.

The undersigned also advised the Examiners during the interview that an additional reference (i.e. Fan U.S. Patent No. 6 400 004) would be submitted along with the Response, and that this reference is not available prior art with respect to the instant invention in view of Applicants priority claim. The Fan reference has a U.S. filing date of August 17, 2000, and the instant application claims a priority date of May 12, 2000. A sworn translation of the priority application is being submitted along with this Response in order to perfect Applicants priority claim. It is submitted that the translation of the priority document supports Applicants' priority claim and that Applicants are entitled to their priority date. Accordingly, Fan '004 has now been removed as an available reference.

Independent Claim 3 is amended herein for clarification purposes and to include the subject matter of dependent Claim 17 as proposed during the interview, and Claims 4, 5, 11 and 12 are amended herein for clarification purposes only. Claims 1, 2, 17 and 18 are cancelled. None of the amendments rendered herein are believed to raise a new issue. Further,

Claims 5-7 and 20 which have been withdrawn from consideration in view of the prior restriction requirement depend from what is believed to be an allowable Claim 4 as discussed below, and it is submitted that these claims warrant consideration and allowance at this time.

Claims 3, 4, 8-10, 17, 19 and 21 stand rejected under 35 USC 103 as unpatentable over Mclellan '200 and Suda '566. Independent Claim 3 is amended to include the subject matter of Claim 17 and Claim 17 is cancelled, as mentioned above. Claim 3 as amended recites "each terminal having a root disposed in the respective connection area defined between interconnected pairs of terminals of adjacent lead frames, each said terminal root defining therein a pair of hollows on respective sides thereof". The Examiner in the outstanding Office Action acknowledges that Mclellan '200 fails to show a hollow or recessed portion, and cites Suda '566 to cure this deficiency. However, the half-etched section 7 as cited by the Examiner which extends transversely between and interconnects the adjacent inner leads 4 is formed in the tie bar 6. The sections 7 are formed so as to prevent the bonding wires 13 (which are bonded to the upper surfaces of the respective sections 7) from being crushed by metal molds 8 and 9. Accordingly, combining Suda's sections 7 with Mclellan '200 will not result in the present invention as recited in Claim 3. Claim 3 is therefore believed allowable.

Independent Claim 4 recites "roots of the respective pairs of interconnected terminals disposed closely adjacent the corresponding lead and projecting outwardly therefrom each have a reduced dimension such that a maximum distance is maintained between laterally adjacent roots of individual lead frames". As mentioned above, the section 7 in Suda '566 as pointed out by the Examiner is located in the tie bar 6, and combining these sections 7 with Mclellan '200 will not result in the invention as defined in Claim 4. Claim 4 is therefore believed allowable.

Claims 8-10 and 19 depend from what is believed to be an allowable Claim 4, are believed allowable therewith, and include additional features which further distinguish over Mclellan '200 and Suda '566. Withdrawn Claims 5-7 and 20 are also believed to warrant consideration at this time since same depend from what is believed to be an allowable Claim 4.

Independent Claim 21 recites "each said terminal having a root defining a recessed area therein and being disposed closely adjacent and projecting from the corresponding said lead". Accordingly, Claim 21 is believed allowable over Mclellan '200 and Suda '566 for similar reasons as presented above.

Claims 11-16 stand rejected under 35 USC 103 as unpatentable over Mclellan '200, Suda '566 and Tsuchiya (U.S. Patent No. 5 633 205). Independent Claim 11 as amended recites "each said lead frame having a metal lead which defines a boundary between said lead frame and an adjacent said lead frame, and pairs of terminals project in opposite directions from each said lead disposed between an adjacent pair of lead frames, each said terminal having a root disposed closely adjacent and projecting from the corresponding said lead, and each said root being recessed inwardly on opposite sides thereof to define a hollow between laterally adjacent roots of the individual lead frames such that a maximum distance is maintained therebetween". As discussed above, Suda '566 teaches providing half-etched sections 7 in the tie bars 6. Further, Tsuchiya '205 pertains to the area of the lead frame wherein the "tip" ends of the inner leads 12 connect to the die pad 30, and teaches recesses 18 formed in the inner leads 12 at this area adjacent the die pad 30.. The outer ends of the leads 12 are connected by a dam bar 15. Thus, Tsuchiya '205 is not concerned with the terminal configuration at the boundary area defined between adjacent lead frames which is the case with the instant invention.

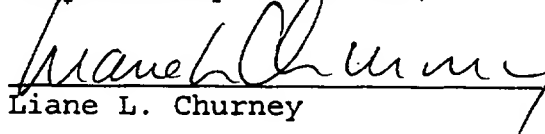
Further, during the interview, the Examiners questioned the embodiment shown in Figure 6 of Tsuchiya '205, which shows

recesses 18a in the leads 12 adjacent the die pad 30, and recesses 18b located outwardly of recesses 18a. However, the embodiment of Figure 6 is concerned with widening the space between the die pad 30 and the leads 12, (see column 5, lines 22-26), and does not relate to the terminal configuration at the boundary area between adjacent lead frames. In view of the above, Claim 21 is believed allowable over Mclellan '200, Suda '566 and Tsuchiya '205.

Claims 12-16 depend from what is believed to be an allowable Claim 11, are believed allowable therewith, and include additional features which further distinguish over Mclellan '200, Suda '566 and Tsuchiya '205.

In view of the above, the instant application is believed to be in condition for allowance, and action toward that end is respectfully requested.

Respectfully submitted,

  
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Copy of U.S. Patent No. 6 400 004

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